WE CLAIM:

1. A method for manufacturing an optical connector assembly achieving a mechanical coupling, comprising:

embedding a length of at least one fiber in an assembly;

polishing a first end of said assembly to provide a beveled surface on a corresponding first end of said at least one fiber at which light is reflected for a side coupling;

polishing at least a portion of a side of said assembly near said first end to provide a flat coupling surface for said side coupling;

polishing a second end of said assembly to provide a flat abutment surface including a corresponding second end of said at least one fiber;

providing at said second end of said assembly a mating structure for precision connecting with a complementary ferrule in which at least one complementary optical waveguide is end-coupled with each one of said at least one optical fiber.

2. The method as claimed in claim 1, wherein said at least one fiber comprises a plurality of fibers arranged parallel to one another with a predetermined spacing arrangement.

3. The method as claimed in claim 2, wherein said polishing at least a portion of a side of said assembly results in a partial removal of a cladding of said fibers near said first end.

4. The method as claimed in claim 2, further comprising providing a package of optoelectronic elements disposed along a line, said package having a single planar window, positioning said window on said coupling surface to align said elements with said fibers, and bonding said window to said

coupling surface such that said optoelectronic elements are coupled with said fibers in a one-to-one manner.

5. The method as claimed in claim 1, wherein said embedding comprises:

providing at least one fiber V-groove in said assembly, each said V-groove adapted for receiving one said optical fiber;

inserting an optical fiber in each of the at least one fiber V-groove;

providing a coating substance over at least one part of said assembly, in the vicinity of the at least one fiber V-groove; and

sealing the optical fiber in each of the at least one fiber V-groove provided in the assembly using the coating substance and a flattened material provided over said assembly surface to create a sealed assembly.

6. The method as claimed in claim 5, wherein said providing said mating structure comprises:

providing at a first end of the assembly at least two alignment V-grooves parallel to said at least one fiber V-groove, at least one of the at least two alignment V-grooves being adapted to receive a dowel;

wherein the combination of each alignment V-groove with a corresponding alignment V-groove provides said precision connecting.

7. The method as claimed in claim 6, wherein a core of said fiber is in a same plane as axes of said alignment V-grooves.

8. The method as claimed in claim 6, wherein:

a cover member is bonded over said alignment V-grooves;

said at least one fiber comprises a plurality of fibers arranged parallel to one another;

said cover member comprises opposed alignment V-grooves positioned opposite said alignment V-grooves of said assembly;

said bonding of said cover member comprises inserting dowel pins in said alignment V-grooves whereby said cover member is spaced from said assembly with said fibers being centered at said second end in a plane extending through an axis of said dowel pins, and positioning said cover member inset from said second end,

whereby said cover member does not interfere with use of said second end for precision abutment coupling with said complementary ferrule.

9. The method as claimed in claim 8, wherein said alignment V-grooves and said opposed alignment V-grooves provide a four-point connection with said dowel.

10. The method as claimed in claim 8, wherein said polishing at least a portion of said side of said assembly results in a partial removal of a cladding of said fibers on said side of said assembly.

11. The method as claimed in claim 5, further comprising the step of polishing away said flattened material on said sealed assembly before said bonding said cover member.

12. The method as claimed in claim 5, wherein said flattened material is transparent, further comprising the step of buffing at least said coupling surface of said assembly on said flattened material.

13. The method as claimed in claim 12, wherein the coating substance is light activated, further comprising the step of light activating the coating substance through said flattened material.

14. The method as claimed in claim 1, wherein said bevel surface is at approximately 45 degrees with respect to said fiber.

15. The method as claimed in claim 6, wherein the at least one fiber V-groove are etched in silicon.

16. The method as claimed in claim 1, wherein the assembly is made using a plastic-molding technique.

17. The method as claimed in claim 3, wherein the assembly is made using a plastic-molding technique, said fibers being positioned in said assembly closer to said side near said first end than at said second end, said polishing at least a portion of said side of said assembly comprising polishing evenly all of said side so as to remove said cladding at said first end only.

18. The method as claimed in claim 1, wherein the bevel surface is coated with a reflective substance.

19. An optical coupling assembly comprising:

a plurality of optical fibers embedded in a parallel arrangement in a body having a beveled end, a substantially flat side coupling surface near said beveled end and an opposite connector end, light being coupled between said coupling surface, said beveled end and said fibers;

a package of optoelectronic elements disposed along a line, said package having a single planar window bonded to said coupling surface such that said optoelectronic elements are coupled with said fibers in a one-to-one manner; and

a precision end-couple ferrule member provided at said connector end of said body for guiding a complementary ferrule member to end-couple fiber-to-fiber said plurality of fibers at said connector end.

20. An optical coupling assembly comprising:

a plurality of optical fibers embedded in a parallel arrangement in a body having a connector end;

at least two alignment V-grooves in said body at said connector end;

a cover member having corresponding opposite alignment V-grooves;

at least two dowel pins bonded in said alignment V-grooves and connecting said cover member to said body, said dowel pins and said V-grooves being dimensioned such that said cover member is spaced from said body with said cover member inset from said connector end,

wherein said dowel pins are adapted for guiding a complementary ferrule member to end-couple fiber-to-fiber said plurality of fibers at said connector end.

21. The assembly as claimed in claim 20, wherein said body has a beveled end opposite said connector end, light being coupled between a side coupling surface of said body, said beveled end and said fibers.

22. The assembly as claimed in claim 21, wherein a part of a cladding of said fibers is removed at least near said beveled end to improve light coupling.

23. The assembly as claimed in claim 20, wherein said fibers are centered at said connector end in a plane extending through an axis of said dowel pins.